

Claims

1. A method of producing carbon-encapsulated metal nanoparticles, comprising the steps of:
5 providing a carbon-containing metal salt or organometallic compound in a reactor; and decomposing the carbon-containing metal salt or organometallic compound whilst maintaining carbon within the reactor to form carbon-encapsulated metal
10 nanoparticles.
2. A method as claimed in Claim 1, wherein the reactor is a vessel having a restricted opening.
- 15 3. A method as claimed in Claim 2, wherein the vessel is a tube having one sealed end and one end with a restricted opening.
- 20 4. A method as claimed in any one of the preceding claims, wherein a unidirectional gas flow across the reaction site is prevented.
- 25 5. A method as claimed in any one of the preceding claims, wherein the carbon-containing metal salt or organometallic compound is decomposed under an inert gas atmosphere.
- 30 6. A method as claimed in Claim 5, wherein the inert gas is argon.

7. A method as claimed in any one of the preceding claims,
wherein the carbon-containing metal salt is decomposed
by heating.
- 5 8. A method as claimed in Claim 7, wherein heating is
carried out at a temperature of 700 to 1500 °C.
9. A method as claimed in any one of the preceding claims,
wherein the metal is iron, nickel, cobalt, ruthenium,
10 osmium, rhodium, iridium, palladium, platinum, a
lanthanide or uranium.
10. A method as claimed in Claim 9, wherein the metal
is a magnetic metal.
- 15 11. A method as claimed in any one of the preceding
claims, wherein the carbon-containing metal salt or
organometallic compound contains at least 5 carbon
atoms per metal atom.
- 20 12. A method as claimed in any one of the preceding
claims, wherein the carbon-containing metal salt is a
carboxylic acid metal salt.
- 25 13. A method as claimed in Claim 12, wherein the
carbon-containing metal salt is a stearate or a
citrate.
- 30 14. Carbon-encapsulated metal nanoparticles produced
by a method as claimed in any one of the preceding
claims.